SONY

3-751-659-21(1)

FM Stereo/FM-AM Receiver

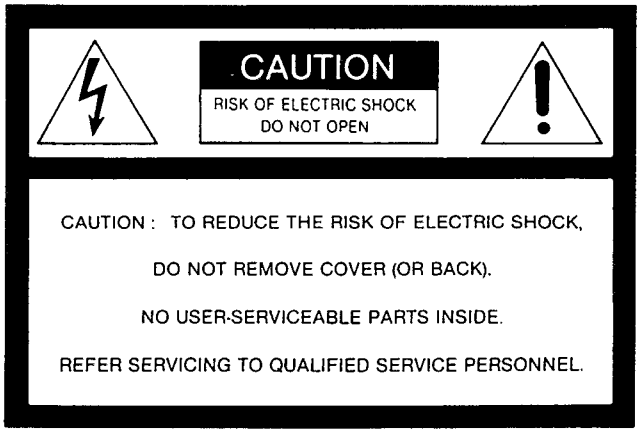
Operating Instructions

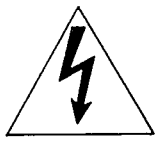
STR-GX40ES
STR-GX50ES
STR-GX60ES

© 1990 by Sony Corporation

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Note to CATV system installer
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Owner's Record

The model and serial numbers are located at the rear. Record these numbers in the spaces provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____

For the customers in Canada

CAUTION :
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

This instruction manual covers the STR-GX40ES, STR-GX50ES, and STR-GX60ES.
The differences between these models are shown in the table below.

	STR-GX40ES	STR-GX50ES	STR-GX60ES
DAT button, and DAT REC OUT and IN jacks	Not equipped	Equipped	Equipped
VIDEO 1 button, and VIDEO 1 VIDEO/ AUDIO IN and OUT jacks	Not equipped	Equipped	Equipped
VIDEO 2 button, and VIDEO 2 VIDEO IN and AUDIO IN jacks	Not equipped	Equipped	Equipped
VIDEO button, and VIDEO AUDIO IN and OUT jacks	Equipped	Not equipped	Not equipped
MONITOR VIDEO OUT jack	Not equipped	Equipped	Equipped
ADAPTOR button and ADAPTOR OUT and IN jacks	Not equipped	Not equipped	Equipped
TAPE MONITOR button and TAPE MONITOR REC OUT and IN jacks	Equipped	Equipped	Not equipped
REC OUT SELECTOR	Not equipped	Not equipped	Equipped
Power output	50 W/ channel	80 W/ channel	100 W/ channel

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Features

The STR-GX40ES, STR-GX50ES or STR-GX60ES is a receiver which controls audio and video sources. The unit allows you to switch easily among a variety of audio/video programs.

Amplifier

- Optical Legato Linear A System allows the receiver to operate automatically as a class A amplifier when the level is low and as a class B amplifier when the level is high without disturbing the sound signal. This minimizes total harmonic distortion at every sound stage.
- These receivers have a spontaneous twin drive power circuit. Condensers having large capacity are used independently for the voltage amplification drive stage of class A and power output stage of class B. Thus, a stable output and high quality sound are obtained, resulting in exclusion of power interferences.
  The class A stage realizes a stable operation free from interference of the power stage even when an instantaneous or strong output is received.
- A source direct switch is employed to reproduce high fidelity sound.
  Any source can be reproduced without passing through the circuits of tone control, loudness switch and balance control.

Tuner

- Precise tuning is obtained thanks to the quartz-locked digital synthesizer system.
- A total of 30 FM/AM stations can be preset in 3 memory pages (A, B and C) that allow you to classify stations.

Remote commander

- The remote commander allows you to control most of Sony's audio equipment from a distance.
- The programmable remote commander supplied with the STR-GX60ES is also equipped with an infrared ray transmitter/receiver which allows it to "read" and "store" control information from other remote commanders. This includes the commander produced by manufacturers other than Sony.

Precautions

On safety

- Operate the unit only on 120 V AC, 60 Hz.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.
- One blade of the plug is wider than the other for the purpose of safety and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.

On operation

- Before making program source connections, be sure to turn the power switch off and unplug the unit.
- When the unit is not used, turn the power off, to conserve energy and to extend the useful life of your unit.

On cleaning the cabinet

Clean the cabinet, panel and controls with a soft cloth lightly moistened with mild detergent solution. Do not use any type of abrasive pad, scouring powder, or solvent such as alcohol or benzine.

For the customers in the U.S.A.

For detailed safety precautions, see the "IMPORTANT SAFEGUARDS" leaflet.

If you have any question or problem concerning your unit, please consult your nearest Sony dealer.

Installing

Notes on Installation

To prevent internal heat buildup in the unit,
place the unit in a location with adequate air circulation.

Do not install the unit:
– near heat sources such as radiators or air ducts.
– in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

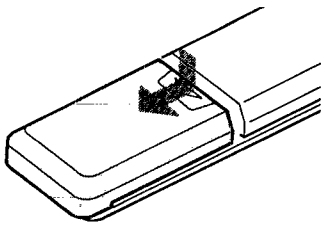
Do not place anything on top of the cabinet.
The top ventilation holes must be unobstructed for the proper operation of the unit and to prolong the life of its components.

Installing Batteries

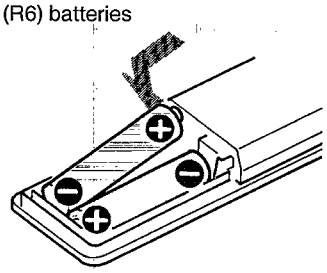
Before operating remote commander, install the batteries as shown.

For STR-GX40ES

1

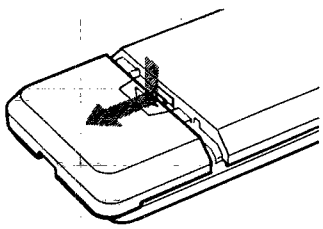


2 Two size AA (R6) batteries

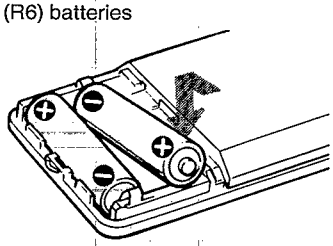


For STR-GX50ES and STR-GX60ES

1



2 Two size AA (R6) batteries



Do not throw away the carton and packing material!
It will be an ideal container when transporting the system for repair work, etc.

To avoid damage caused by battery leakage and corrosion
When the commander will not be used for a long time, remove the batteries.
Normal operation can be expected about a half year using Sony SUM-3 (NS), and a year using Sony AM-3 (NW) alkaline batteries. When the batteries are run down, the remote commander will not operate the unit. In this case, replace batteries with new ones.

Changing the AM tuning interval
The AM tuning interval is preset to 10 kHz. To use the receiver where the frequency allocation system is based on a 9 kHz interval, make the following adjustments.

1 Turn on the power and tune in any AM station.
2 Turn off the power.
3 Press SYSTEM POWER while pressing the "+" TUNING button.

To reset the AM tuning interval, repeat the above steps.

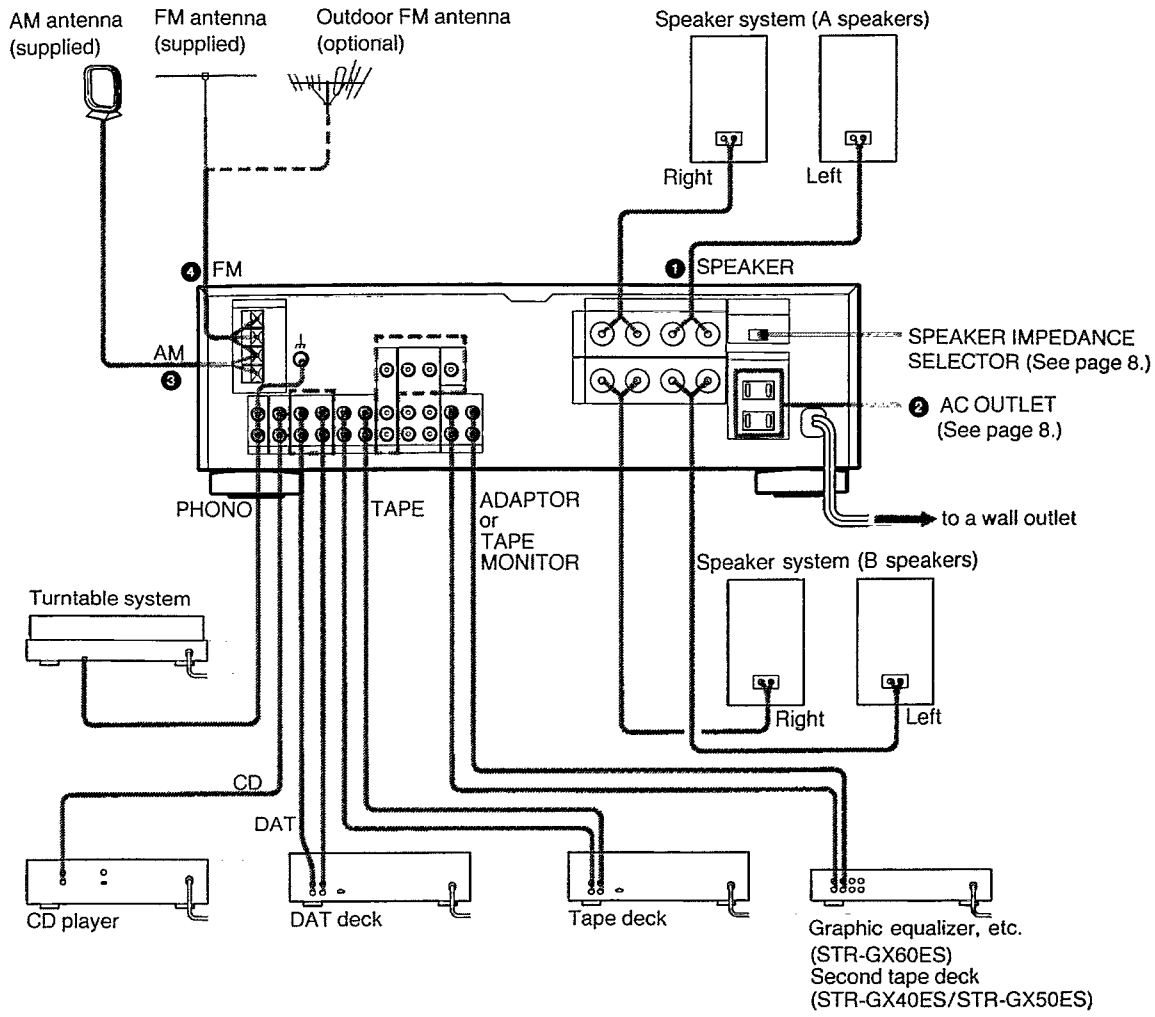
Caution
When the interval is changed, all preset stations which you have memorized will be erased. After changing the interval, be sure to preset the stations again.

Connecting the System

Notes on Connection

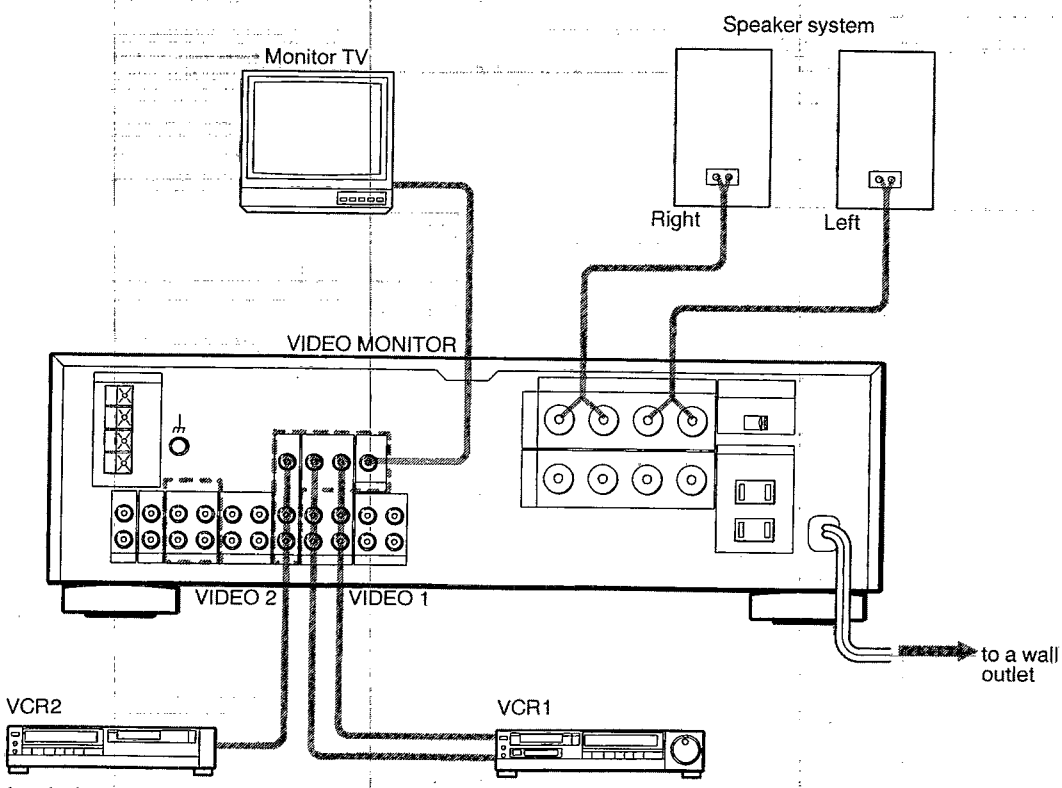
- The power cord should be connected last of all, after making sure that the POWER switch is turned off.
- The cable connectors should be fully inserted into the jacks. A loose connection may cause hum and noise.
- Cord plugs and jacks are color coded. The red plugs and jacks are to be connected to the right-channel(R) and white ones to the left-channel(L).

Audio Connection Diagram



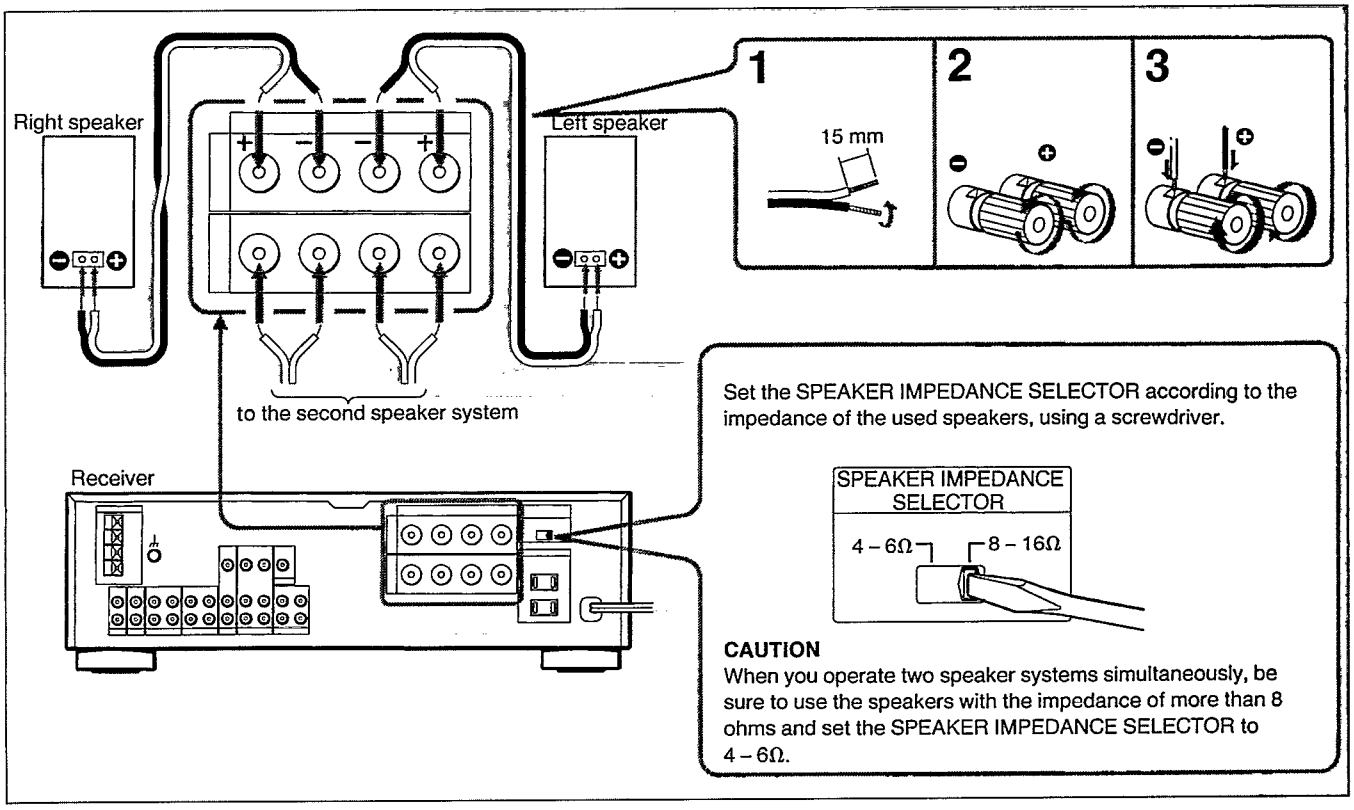
parts equipped only with STR-GX50ES and STR-GX60ES.

VCR and TV Connection Diagram



parts equipped only with STR-GX50ES and STR-GX60ES.

① Connecting the Speakers


Right speaker
Left speaker
to the second speaker system
Receiver
1
15 mm
2
3
Set the SPEAKER IMPEDANCE SELECTOR according to the impedance of the used speakers, using a screwdriver.
SPEAKER IMPEDANCE SELECTOR
4 – 6Ω
8 – 16Ω
CAUTION
When you operate two speaker systems simultaneously, be sure to use the speakers with the impedance of more than 8 ohms and set the SPEAKER IMPEDANCE SELECTOR to 4 – 6Ω.

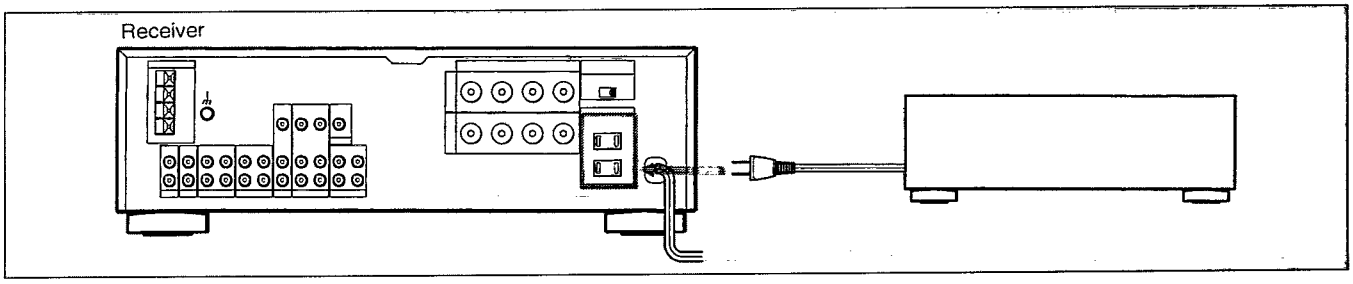
Note

Once the speakers have been connected, move SPEAKERS selector (on the front panel) to A, B or A + B setting.
When using the headphones, set the SPEAKERS selector to OFF.

Speaker impedance and power capability

This receiver is designed to work best with speakers having nominal impedance from 4 to 16 ohms at rated 50 watts (STR-GX40ES), 80 watts (STR-GX50ES) or 100 watts (STR-GX60ES) RMS per channel with an 8 ohms load from 20 – 20,000 Hz.

② Using AC outlets

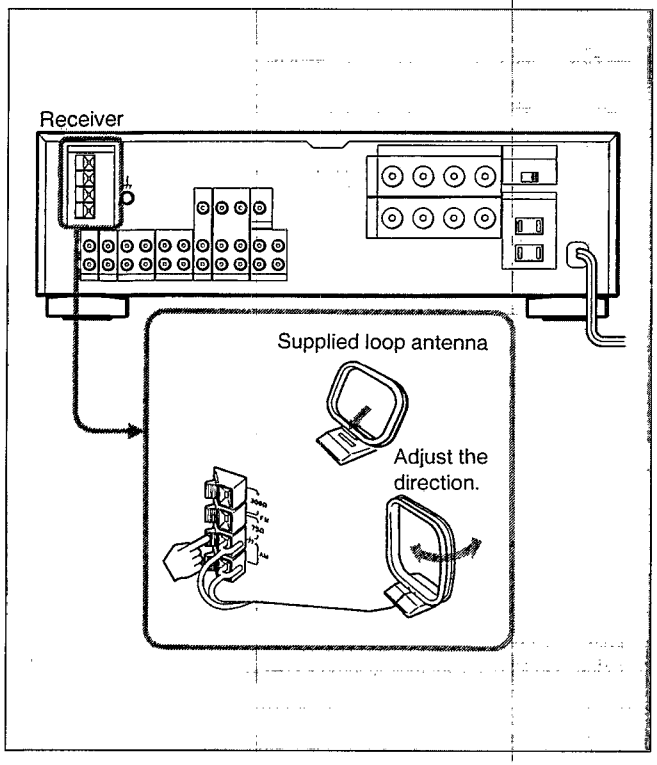


Connect the AC power cord of each piece of equipment to the AC outlet on the receiver so that you can turn the equipment on and off using the receiver's POWER switch.

Caution

Be careful that the total power consumption of each piece of equipment connected to the outlets on the receiver does not exceed 100 watts.
Do not connect electrical home appliances such as an electric iron, fan, TV, or other high-wattage equipment to these outlets.

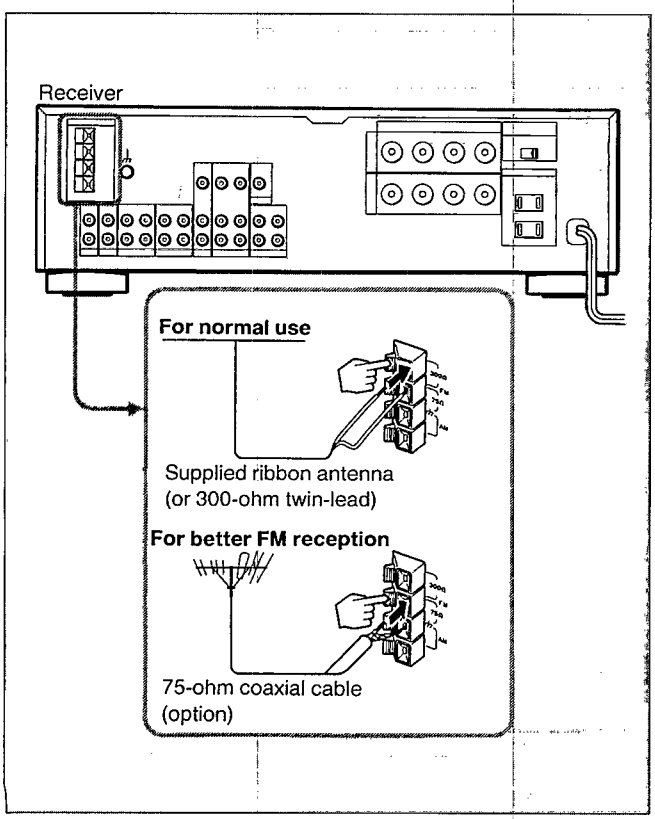
③ Connecting the AM Antenna



For areas with difficult AM reception

In areas with troubled reception, connect a 6 to 15-meter (20 to 50-foot) insulated wire to the AM antenna terminal. Extend this out of doors if possible, keeping the greater portion horizontal.
(There is no need to disconnect the supplied antenna.)

④ Connecting the FM Antenna

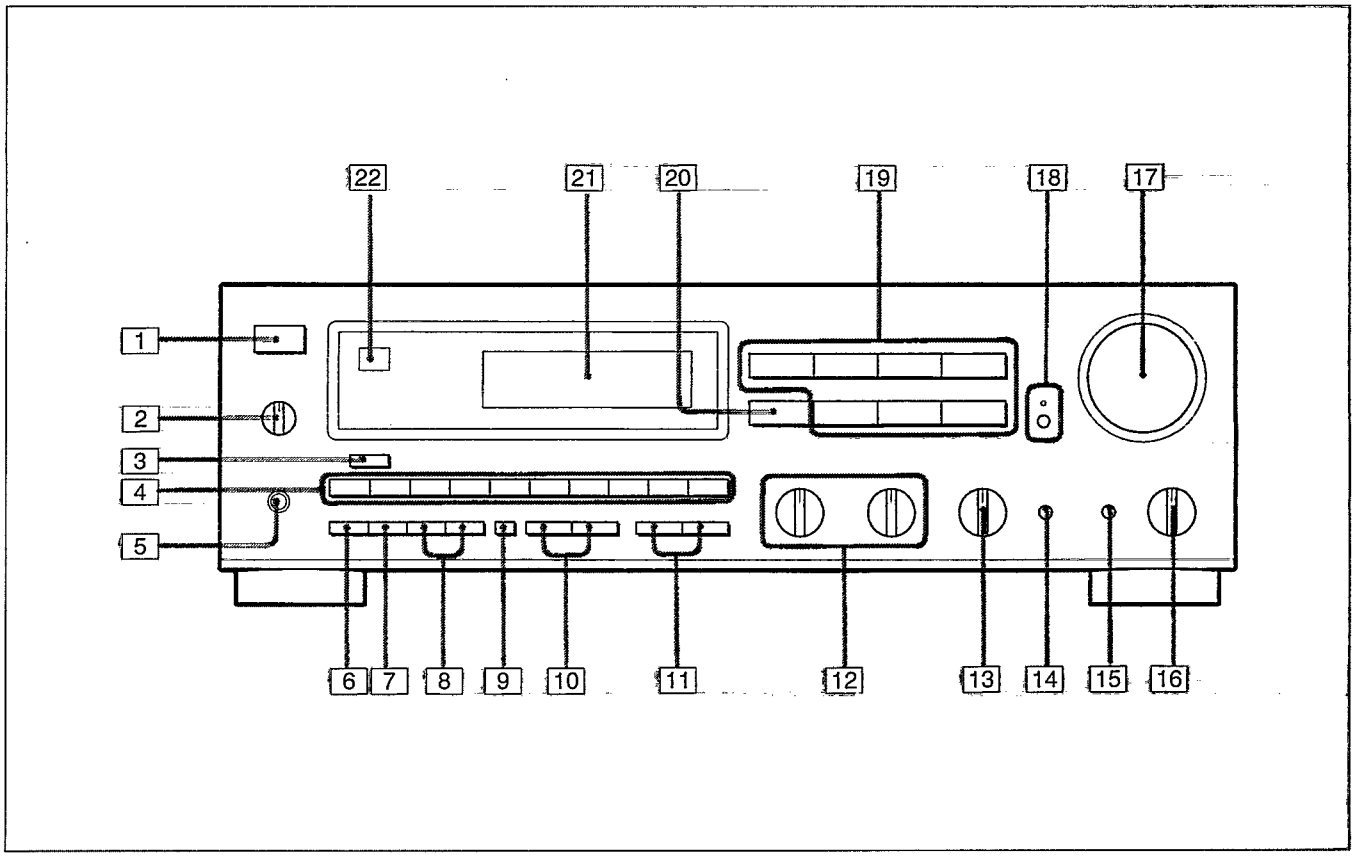


Connecting the Antenna Ground

To prevent hum, connect the ground wire to ANTENNA ground terminal (⏚).
When an outdoor antenna is installed, be sure to connect the ground wire for lightning protection.

Parts Identification

Front Panel



1 **POWER switch**

2 **SPEAKERS selector** (page 8)

3 **SHIFT (memory page select) button** (pages 16 and 17)

4 **Numeric buttons** (page 16)

5 **HEADPHONES jack**

6 **FM MODE button** (page 15)

7 **FM TUNE MODE (FM tuning mode) selector** (pages 15 and 16)

8 **BAND selectors** (pages 15 and 16)

9 **MEMORY button** (page 16)

10 **TUNING buttons** (pages 15 and 16)

11 **PRESET TUNING buttons** (page 17)

12 **BASS and TREBLE tone controls** (page 14)

13 **REC OUT SELECTOR** (recording output selector) (STR-GX60ES only) (page 19)

14 **SOURCE DIRECT switch** (page 14)

15 **LOUDNESS switch** (page 14)

16 **BALANCE control** (page 14)

17 **ATTENUATOR knob and indicator** (page 14)

18 **MUTING switch and indicator** (page 14)

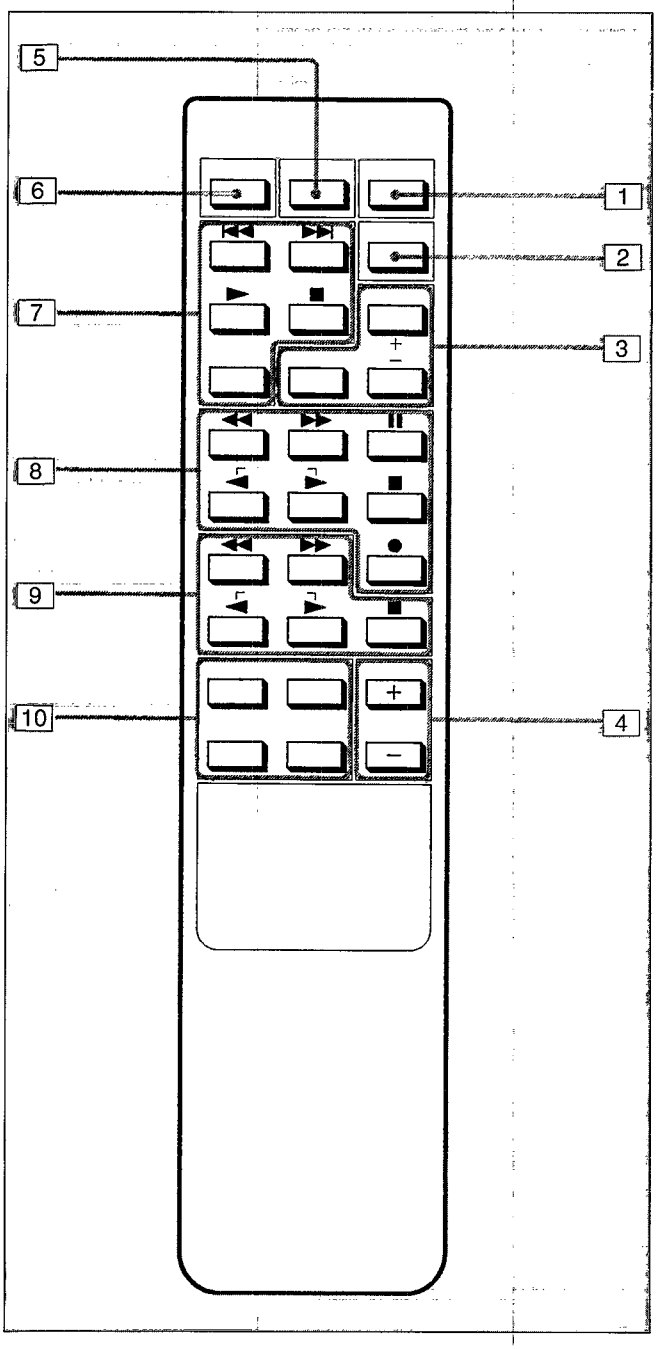
19 **FUNCTION selectors**

20 **ADAPTOR switch** (STR-GX60ES) (page 14)
TAPE MONITOR switch (STR-GX40ES/STR-GX50ES) (page 18)

21 **Display window**

22 **Remote control sensor**

Remote Commander RM-S103 (supplied with the STR-GX40ES)



1 **POWER switch**

2 **DBFB button**
This button does not operate with this receiver.

3 **TUNER PRESET +/– and SHIFT buttons** (pages 16 and 17)

4 **VOLUME +/– buttons**

5 **SURROUND button**
This button does not operate with this receiver.

6 **MUTING button** (page 14)

7 **CD player operation buttons***
D (disc) SKIP: When your CD player is equipped with a multi-disc changer, use this button to select loaded disc.
CD ►: Selects the CD function and starts CD playback.

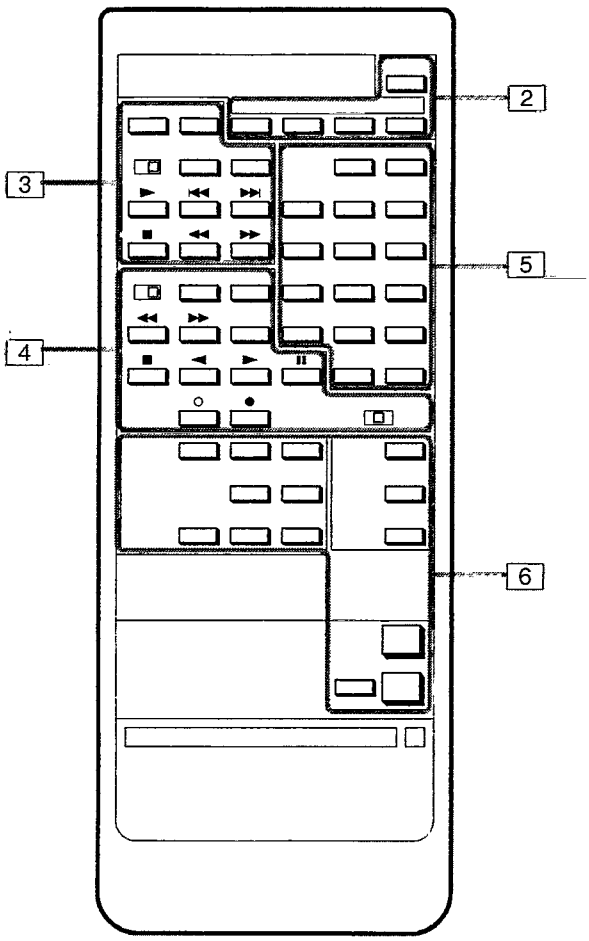
8 **DECK B operation buttons***
DECK B ◄/►: Select tape function and start tape playback on deck B.

9 **DECK A operation buttons***
DECK A ◄/►: Select tape function and start tape playback on deck A.

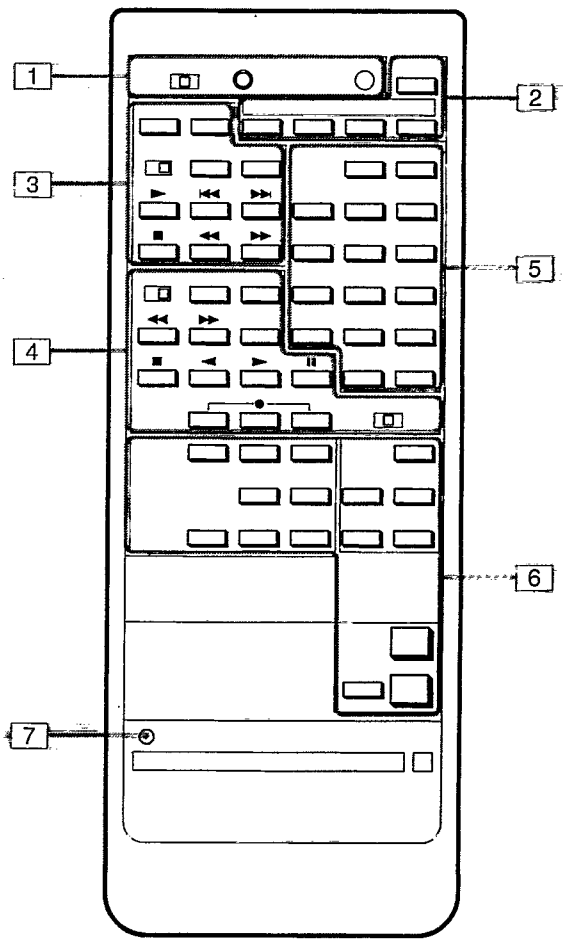
10 **Function selectors**

* These buttons control Sony audio components.

Remote Commander RM-U203 (supplied with the STR-GX50ES)/RM-P303 (supplied with the STR-GX60ES)



RM-U203



RM-P303

1 **Program control section** (RM-P303 only)
Mode selector and indicator (page 24)
SONY STD: To control Sony equipment.
USER STD: To control equipment whose remote control functions are stored.
LEARN: To store functions of other remote commanders emitting infrared rays.
PROGRAM CLEAR button: Clears the stored functions.

2 **Power control section**
SYSTEM OFF button: Turns off the power of the whole system: LDP, VTR, TV and AUDIO.
LDP/VTR/TV/AUDIO POWER buttons: Control the power of each unit.

3 **CDP/LDP control section**
CDP/LDP selector: Selects CDP (CD player) or LDP (Laser disc player) to be played.
CONTINUE: Continuous play (only for CD player)
SHUFFLE: Shuffle play (only for CD player)
PGM: Program play (only for CD player)
D (disc) SKIP: Disc skip (for a CD player equipped with a multi-disc changer)
▶: Starts play.
I◀◀/▶▶I: Locates a desired selection
■: Stops play.
◀◀/▶▶: Manual search

4 **TAPE/DAT/VTR control section**
TAPE/VTR selector: Selects TAPE (tape deck) or VTR(VCR) to be controlled.
ANT TV/VTR button: Selects the output signal from the antenna terminal on the VCR, either a TV signal or VCR programs.
CH +/− buttons: Select channel on the VCR.
◀◀/▶▶: fast winding
■: Stop
◀/▶: Play
II: Pause
O (RM-U203 only): Record muting
● (RM-U203 only): Recording (While pressing ●, press ▶)
REV/● REC/FWD buttons (RM-P303 only):
For reverse recording, press REV and REC together.
For forward recording, press FWD and REC together.
DECK/VTR selector
DECK A, B, and DAT: Select A, B, or DAT.
VTR 1,2, and 3: Select VCR type.
1: Betamax VCRs
2: 8mm VCRs
3: VHS VCRs

5 **TV control section**
VOL +/− buttons: Control the TV volume.
CH +/− buttons: Select a preset channel.
Program number (1 to 0) and ENTER buttons: Select the channel.

6 **Receiver control section**
FUNCTION selectors:
Select an input source of the receiver.
SHIFT button: Selects a memory page.
TUNER PRESET station select buttons:
Select a preset station.
PHONO START button (RM-P303 only):
Starts record playing.
PHONO STOP button (RM-P303 only):
Stops record playing.
MUTING button: Mutes the sound.
MASTER VOL +/− buttons:
Control the receiver volume.

7 **RESET button** (RM-P303 only)
Reset the commander to the initial state.

Notes

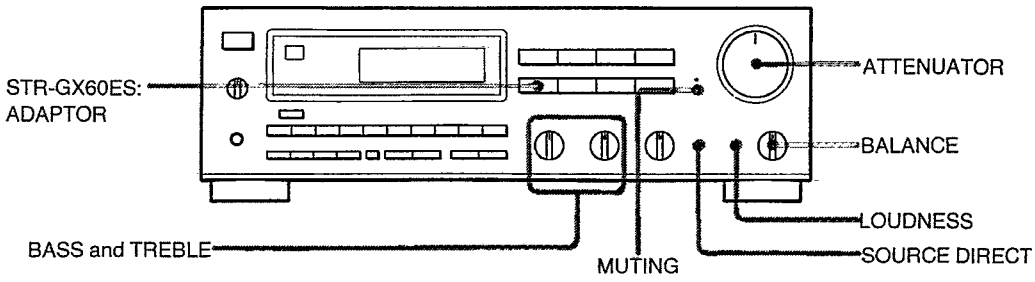
- SHUFFLE and PGM modes of some CD players cannot be cleared by this remote commander. In such cases, clear the modes using the CD player itself or with the remote commander supplied with the CD player.

Note on the ● (recording)button under 4 TAPE/DAT/VTR buttons

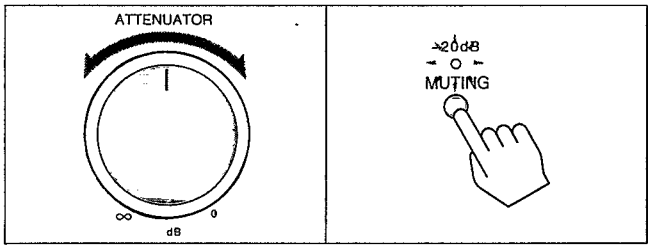
If your recorder is of such type as pressing ● puts it in recording pause mode, first press ● on this commander and then II.

Audio Adjustment

For getting the optimum sound, you can adjust volume and sound quality using the functions below.



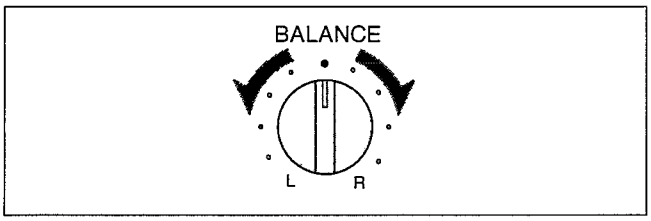
Volume Adjustment



To adjust volume
Turn ATTENUATOR.

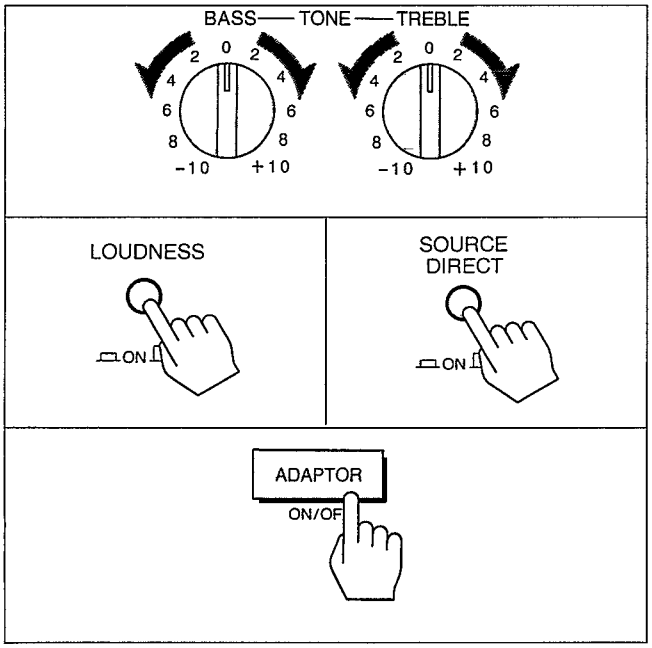
To reduce the sound to a low level temporarily (−20 dB attenuation)
Press MUTING.
Press again to restore the same listening level as before.

Balance Adjustment



To change the relative strength of the right and left speaker output
Adjust BALANCE to correct stereo imaging, when the speaker position is not symmetrical.

Sound Quality Adjustment



To adjust the tone quality
Adjust BASS or TREBLE for the optimum sound.

To reinforce the bass frequency response
Press LOUDNESS.
The lower the speaker output level is, the more bass frequency sound is emphasized.

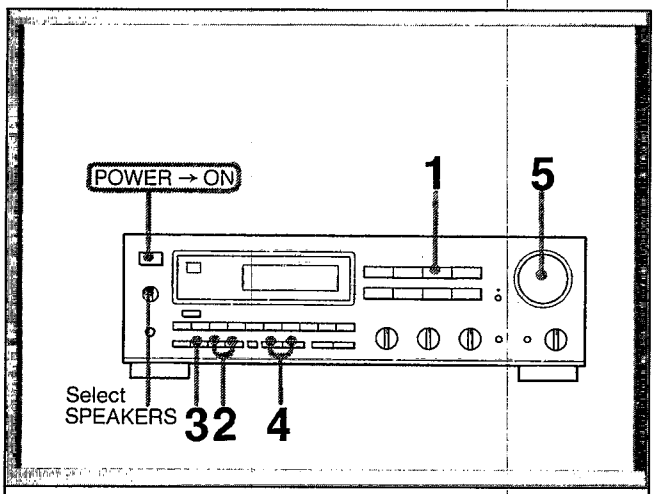
To bypass the tone control circuit
Press SOURCE DIRECT.
BASS and TREBLE tone controls, BALANCE control and LOUDNESS are bypassed.

To adjust the sound quality using the equalizer, etc. connected to ADAPTOR jacks (STR-GX60ES only)
Press ADAPTOR and operate the equalizer, etc. connected to ADAPTOR jacks.

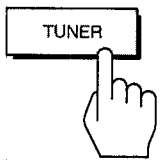
Note
Be sure to set the ADAPTOR switch to OFF when the ADAPTOR jacks are not connected. Otherwise, sound cannot be heard.

Receiving FM/AM Broadcasts

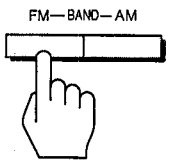
Tuning in an FM Station Automatically-Automatic Tuning



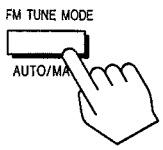
1



2

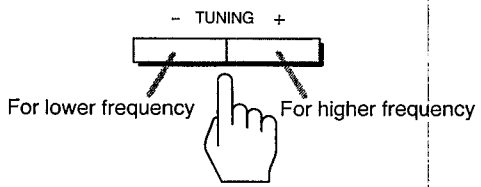


3



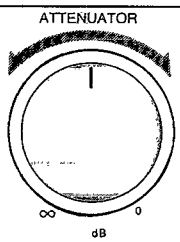
AUTO indicator appears.

4



When a station is received, automatic tuning stops.

5

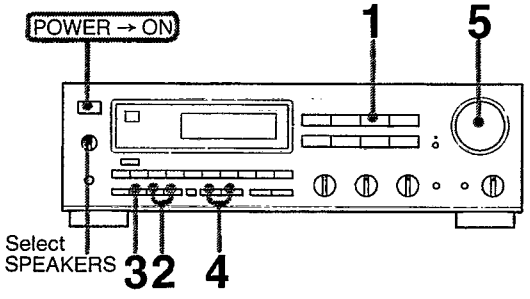


When sweeping does not stop at the desired station
The signal strength is weak.
To stop sweeping, press FM TUNE MODE again. AUTO indicator disappears and automatic tuning stops.
Then tune in the station as described in "Manual Tuning".

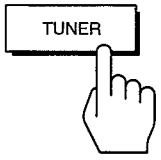
When an FM stereo program is noisy or hard to receive
Press FM MODE. The MONO indicator appears (the sound is heard in monaural, but the reception will be improved).
To return to the stereo mode, press the button again or tune in another station.

Tuning in an FM/AM Station Manually – Manual Tuning

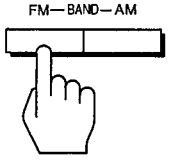
When you do not know the frequency of an FM/AM station, proceed as follows:



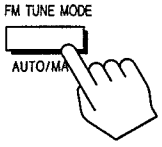
1



2 Select FM or AM.

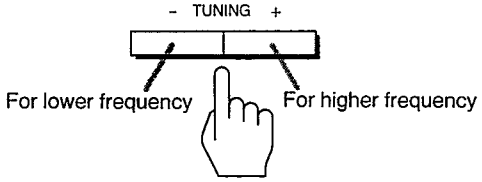


3

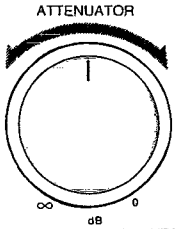


AUTO indicator disappears.

4

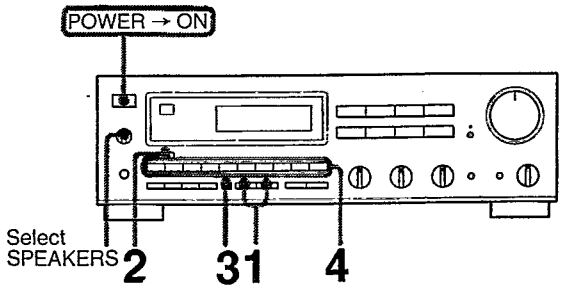


5

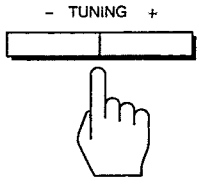


Memorizing a Station

A total of 30 FM/AM stations can be memorized in any desired sequence.

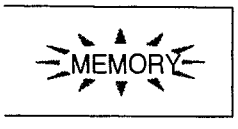


1 Tune in the desired station.

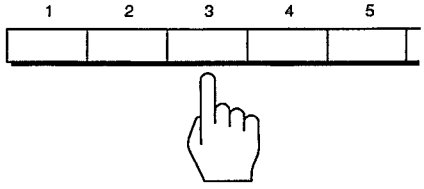


2 Select the memory page (A, B, and C).

3

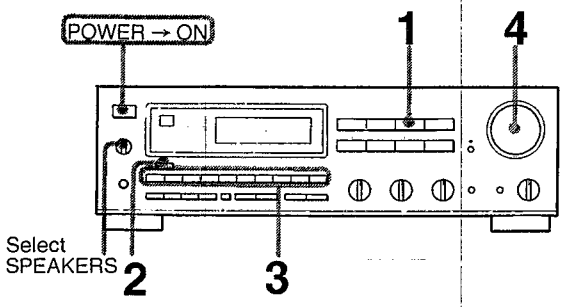


4 While the MEMORY indicator is on, press the desired number.

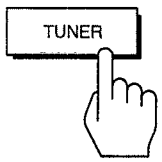


Tuning in a Preset Station

Method A

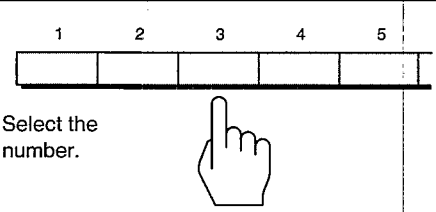


1

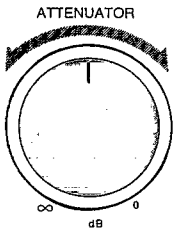


2 Select the page.

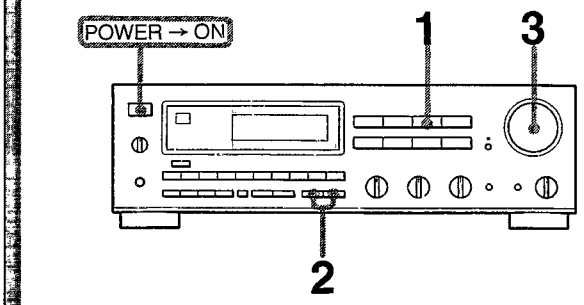
3



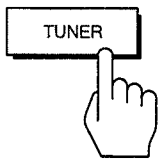
4



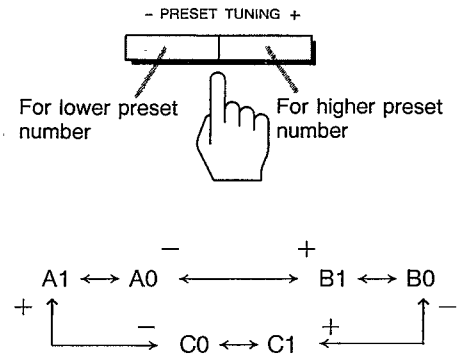
Method B



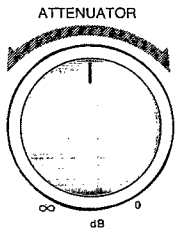
1



2



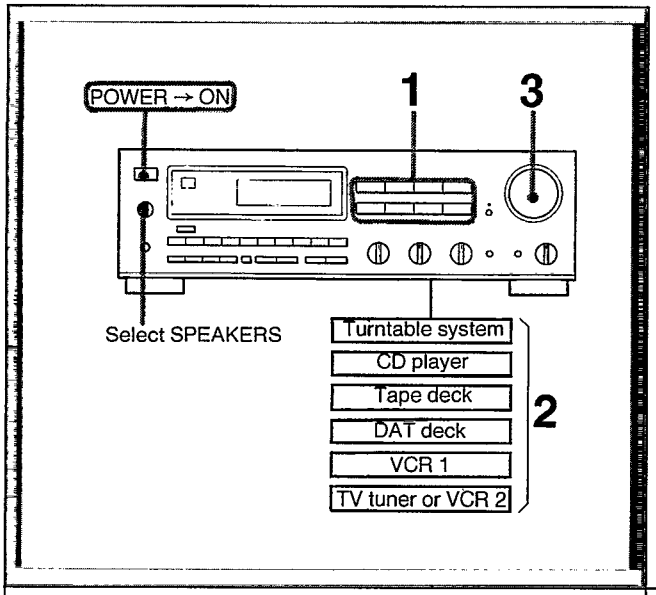
3



Replacing a preset station
Preset another station on the number of the station to be replaced. The previously preset station will be erased.

IMPORTANT
The memorized station is maintained for approximately one month even if the power cord is disconnected from the AC power source. If they are erased, store the stations again.

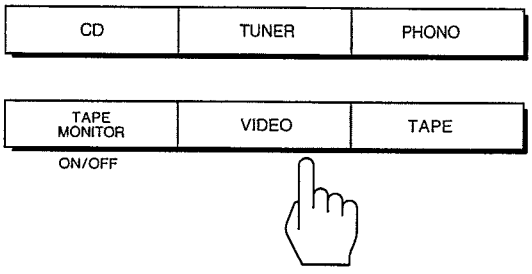
Listening to Program Sources Other than Broadcasts



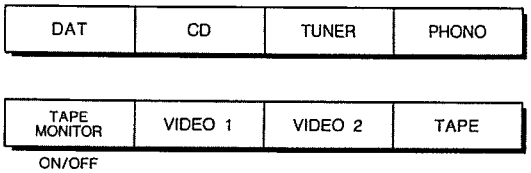
1 Select the program source.

	FUNCTION
Phono record	PHONO
Compact disc	CD
Video programs	VIDEO 1 or 2 (STR-GX50ES/60ES) VIDEO (STR-GX40ES)
Taped programs	TAPE or TAPE MONITOR (STR-GX40ES/50ES)
DAT programs (STR-GX50ES/60ES)	DAT

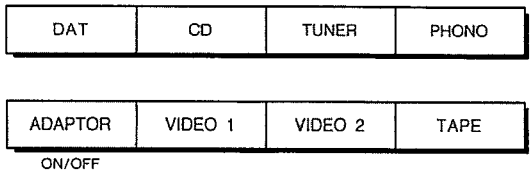
STR-GX40ES



STR-GX50ES

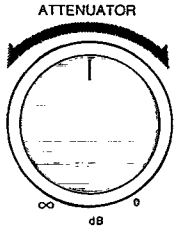


STR-GX60ES



2 Start the program.

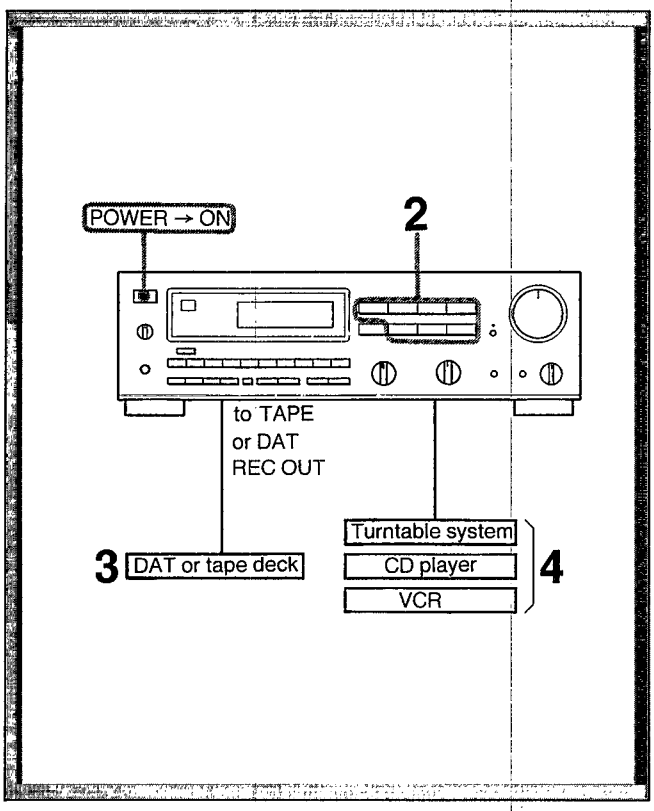
3



Note on TAPE MONITOR button (STR-GX40ES/50ES)
The TAPE MONITOR button has priority over other function selectors. Be sure to release the TAPE MONITOR button except when listening to taped program. Otherwise, the program source selected with the function selector cannot be heard.

Recording on an Audio Tape

Recording



STR-GX40ES, STR-GX50ES

1 Turn on the receiver and the equipment to be used.

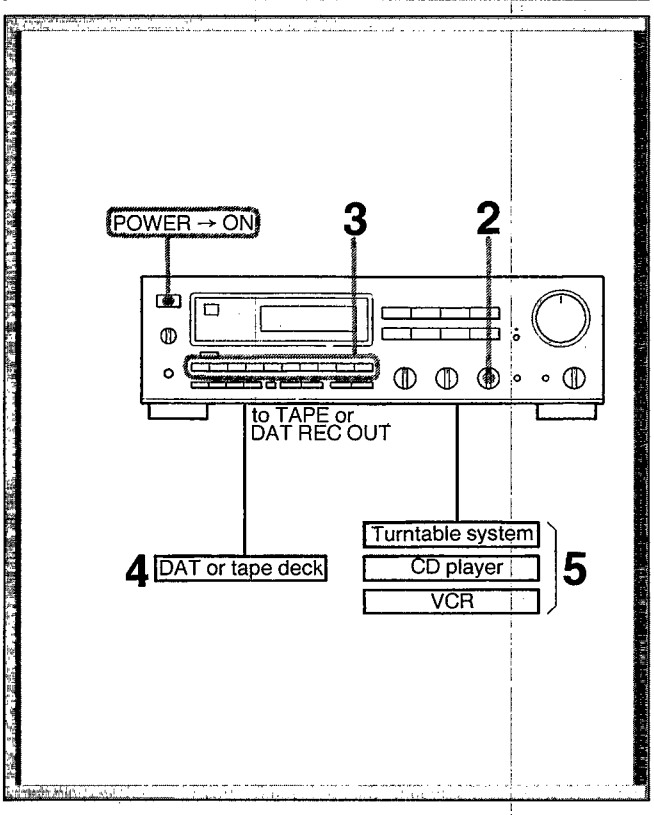
2 Select the desired program source.

3 Set the DAT (STR-GX50ES only) or tape deck in the recording mode.

4 Start the desired program source.

To monitor recorded sound while recording

If a tape recorder with three-head system is connected to TAPE MONITOR jacks, recorded sound can be monitored. Select recording tape recorder using the TAPE MONITOR button. The recorded sound is immediately fed back to the amplifier and output to the speakers.



STR-GX60ES

1 Turn on the receiver and the equipment to be used.

2 Select the desired program source with REC OUT SELECTOR.

3 For an FM/AM broadcast, tune in the desired station.

4 Set the DAT or tape deck in the recording mode.

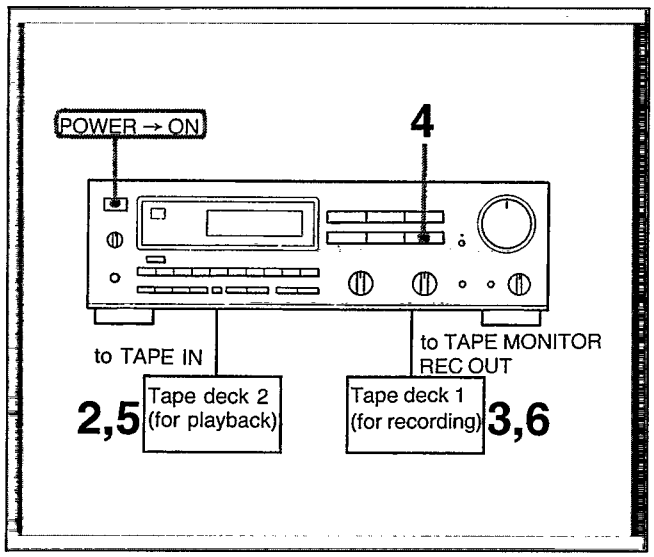
5 Start the desired program source.

You can listen to another program source without affecting the recording by pressing FUNCTION selector.

Note on recording

The setting of the volume, BASS, TREBLE, and BALANCE controls do not have any effect on recording.

Tape Dubbing



STR-GX40ES

1 Turn on the receiver and the equipment to be used.

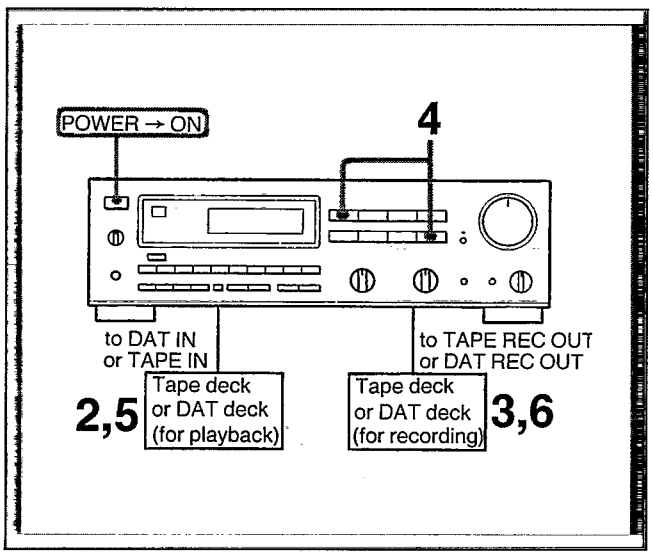
2 Insert the recorded tape into deck connected to the TAPE jacks.

3 Insert a blank tape into the tape deck connected to the TAPE MONITOR jacks and adjust the recording level.

4 Press TAPE.

5 Start the playback of the tape deck for playback.

6 Set the tape deck for recording in the recording mode.



STR-GX50ES

1 Turn on the receiver and the equipment to be used.

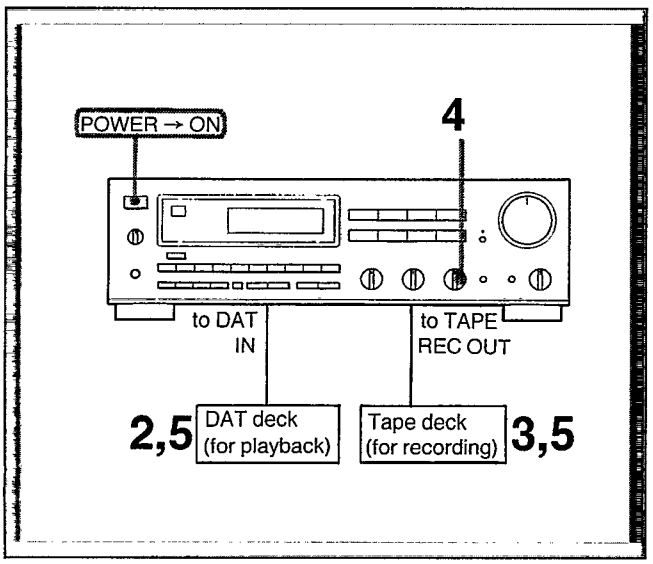
2 Insert the recorded tape into deck connected to the TAPE jacks or DAT jacks.

3 Insert a blank tape into the DAT deck or the tape deck for recording and adjust the recording level.

4 Press TAPE or DAT to be played.

5 Start the playback of the tape deck or the DAT deck.

6 Set the DAT deck or the tape deck for recording in the recording mode.



STR-GX60ES

1 Turn on the receiver and the equipment to be used.

2 Insert the recorded tape into DAT deck.

3 Insert a blank tape into the tape deck and adjust the recording level.

4 Select DAT with REC OUT SELECTOR.

5 Start the playback of DAT deck and set tape deck in the recording mode.

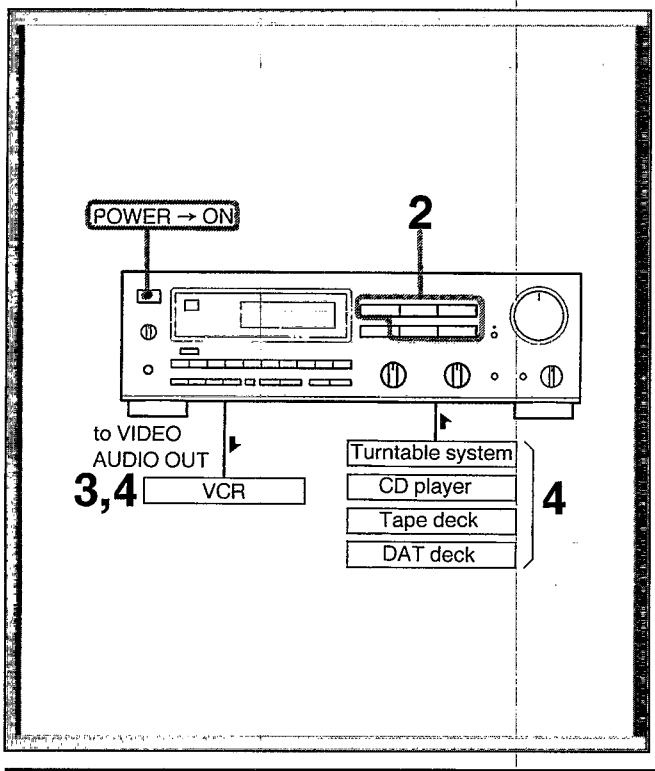
Note

You can dub an audio tape from tape deck to DAT deck, if you select TAPE at the step **4** above.

Recording on a VCR

Recording Audio Programs (STR-GX40ES only)

To record an audio program source on a video tape, proceed as follows:



1 Turn on the receiver and the equipment to be used.

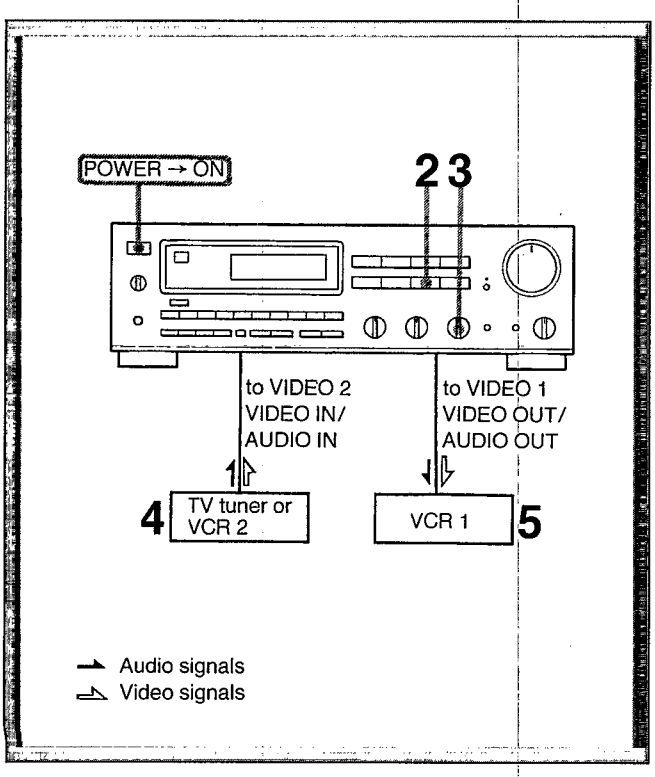
2 Select the desired program source.

3 Insert a video tape into the VCR and adjust the recording level.

4 Start the program source and set the VCR in the recording mode.

Recording TV Programs (STR-GX50ES/STR-GX60ES)

To record the picture and the sound of a TV program, proceed as follows:



1 Turn on the receiver and the equipment to be used.

2 Press VIDEO 2.

3 Select VIDEO with REC OUT SELECTOR (STR-GX60ES only).

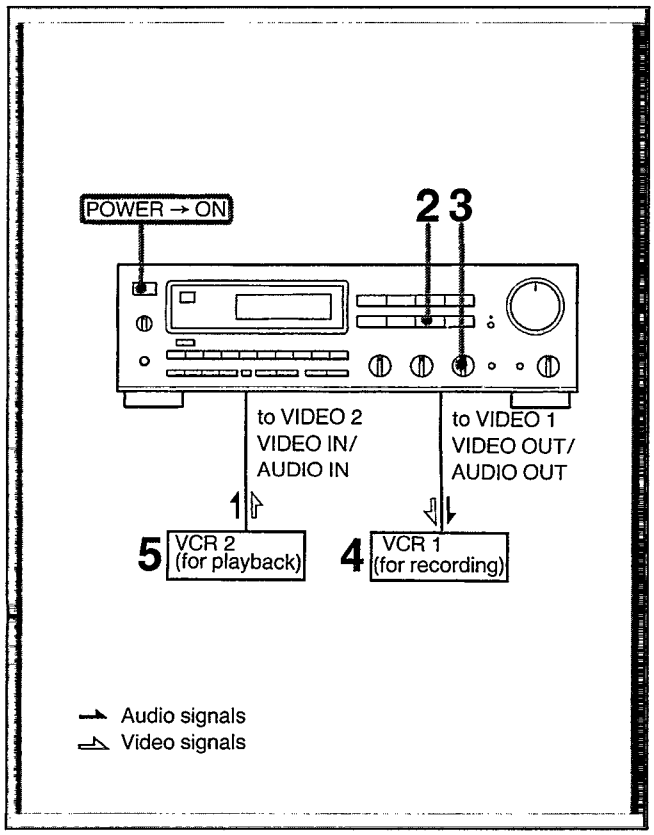
4 Select the desired program on the TV tuner or VCR 2.

5 Set the VCR 1 to the recording mode.

With the STR-GX60ES, you can listen to another program source without affecting the recording by pressing FUCTION selector.

Note
You cannot record on a VCR connected to VIDEO 2 inputs.

Video Tape Editing (STR-GX50ES/STR-GX60ES)



1 Turn on the receiver and the equipment to be used.

2 Press VIDEO 2.

3 Select VIDEO with REC OUT SELECTOR (STR-GX60ES only).

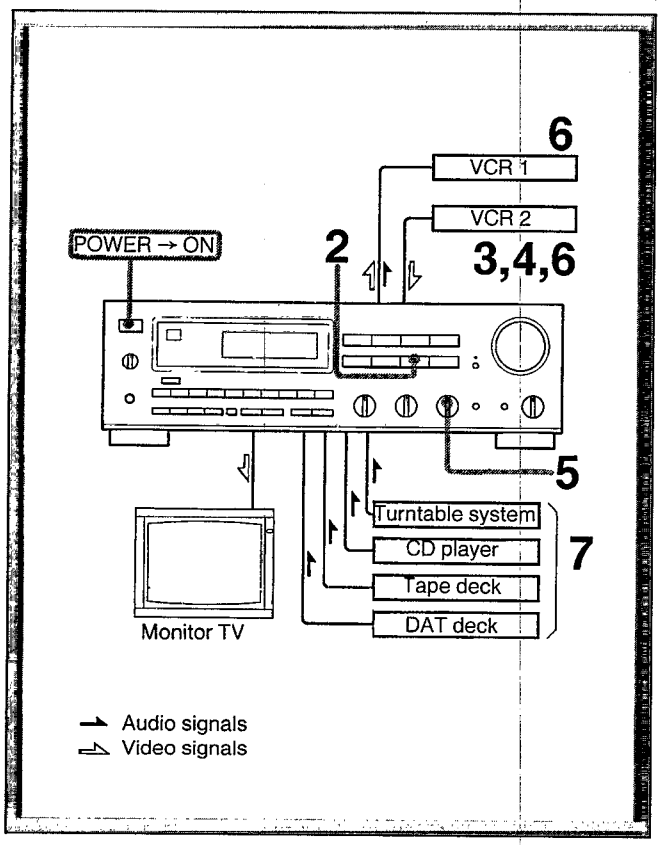
4 Set the VCR 1 to the recording mode.

5 Set the VCR 2 to the playback mode.

With the STR-GX60ES, you can listen to another program source during video tape editing by selecting FUNCTION selectors.

Adding New Sound on a Video Tape during Editing (STR-GX60ES only)

During video tape editing, you can replace the sound previously recorded on a video tape with sound from another audio source, thus making your own personalized video tape.



1 Turn on the receiver and the equipment to be used.

2 Press VIDEO 2.

3 Insert a recorded tape into the VCR 2 and set it in the playback mode.

4 At the point where audio dubbing is to start, press the PAUSE button on the VCR 2.

5 Select the audio program source with REC OUT SELECTOR.

6 Release the pause mode of the VCR 2 and set the VCR 1 to the recording mode.

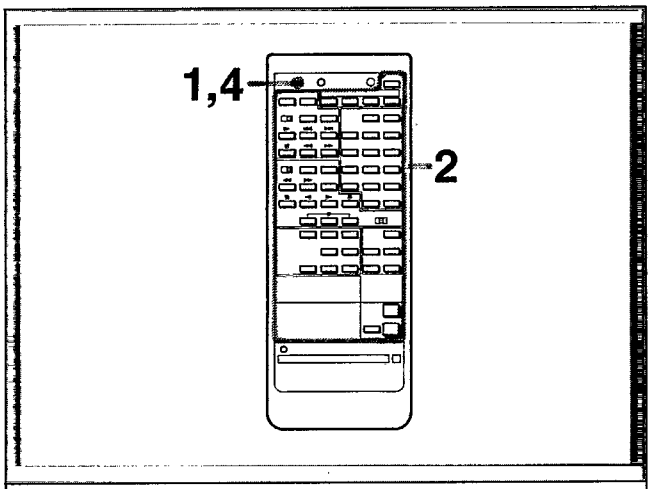
7 Start playing the selected program source.

Note

You cannot edit a video tape from the VCR 1 to VCR 2.

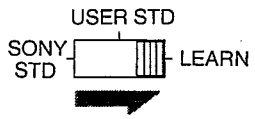
How to Use the Learning Function (STR-GX60ES only)

Programming Signals of Other Audio/Video Equipment with Programmable System Commander RM-P303

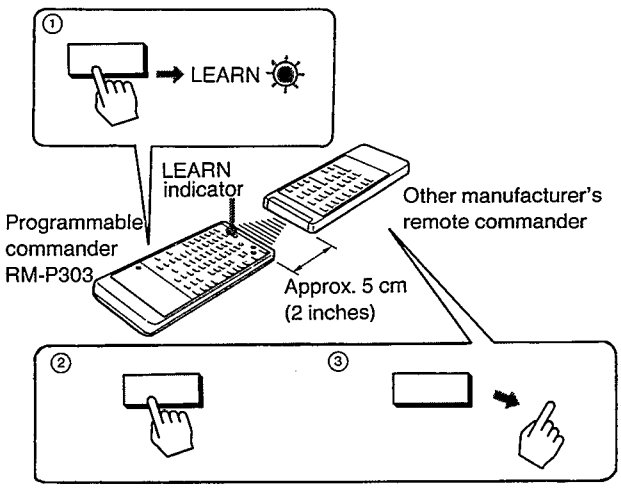


The RM-P303 learns various functions of other remote commanders emitting infrared rays and allows you to control most of audio and video equipment from a distance.

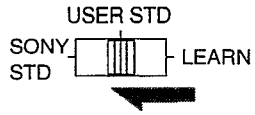
1



2



4



1 Set the mode selector to LEARN.

2 Program a signal.

① Press and hold the button which shall "learn" the remote-control signal until the LEARN indicator lights up.

② Press and hold the button of other manufacturer's remote commander whose signal is to be learned.

③ Remove your finger(s) from the button(s) after the LEARN indicator goes off.

The two remote commanders must:

- face straight each other.
- be placed at a distance of approx. 5 cm (2 inches).
- not be moved during programming operation.

3 Repeat operation for each button to be programmed.

4 Set the mode selector to USER STD or SONY STD.

After programming

Be sure to test if the equipment really works with the programmed signals.

Number of signals that the commander can learn

It depends on the format of the signal. If you program signals of Sony equipment, approximately 50 – 60 signals can be programmed.

If the LEARN indicator flashes or does not go out in step 2-②, ③.

The memory capacity has become full. This occurs when other signals stronger than the remote-control signals have been stored because the signals were programmed in a noisy environment or the remote commanders were placed too far apart from each other.

→ Clear all the signals following the procedure on the right and program again from the beginning under the proper conditions.

Notes on programming

- Remote-control signals of equipment of manufacturers other than Sony can be programmed only when they are compatible with the infrared wireless remote control system. Since the programmable commander can "learn" only the signals output from another remote commander, it cannot control equipment that does not use a remote commander. Also, note that there are some special remote-control signals that cannot be programmed.
- Do not attempt to use the programmable commander with an air conditioner or other household appliances.

To program a new signal onto a previously programmed button

Follow the programming procedure.
The previously programmed signal is cleared and replaced by the new signal.

To clear all programmed signals

1 Set the mode selector to LEARN.
2 Press and hold any button of the programmable area until the LEARN indicator lights up.
3 Press PROGRAM CLEAR until the LEARN indicator flashes and goes off.

Note

It is not possible to clear the programmed content of just one button.

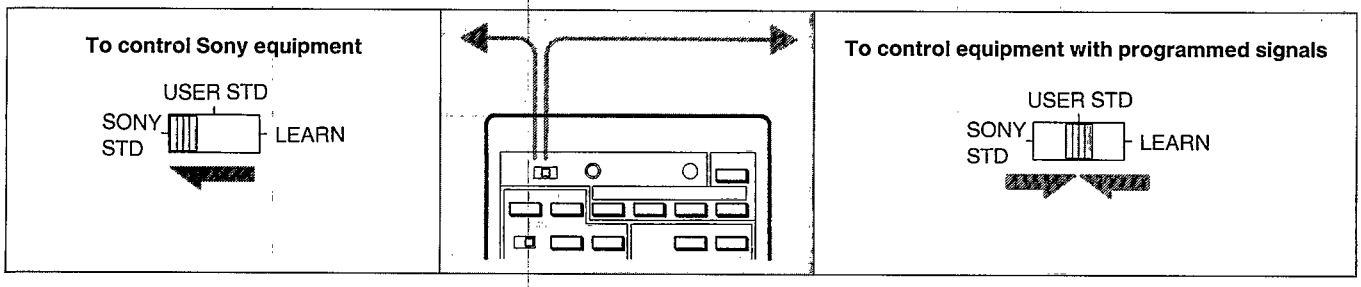
To program a signal onto the ● REC button in the TAPE or VTR section

It is not possible to operate any equipment with only the ● REC button. To program a signal under the ● REC button, press and hold the following buttons at the same time in step 2-①.

TAPE	REV ●REC ●REC FWD
VTR	●REC FWD

Controlling Equipment

By switching the mode selector as shown below, a single button alternately controls Sony equipment and another manufacturer equipment.



When Sony equipment cannot be remote-controlled

Program the signal in the same way as for equipment from other manufacturers. In this case, even with Sony equipment, set the mode selector to USER STD.

Notes on Battery

If the LEARN indicator does not light when a button is pressed, the batteries are almost exhausted.
When the batteries are exhausted, the remote commander can no longer operate the unit or programming becomes impossible.
If this happens, replace both batteries with new ones. We recommend the use of alkaline batteries for prolonged use.

If no signal has been programmed

The programmable commander can control Sony equipment even when the mode selector is set to USER STD.

If the equipment works incorrectly

Press RESET.
The programmed contents of the buttons are not cleared by pressing RESET.

Troubleshooting Guide

Before proceeding through the check list below, examine the connections and the procedures outlined the manual.
Should any problem persist after you have checked the following items, consult your nearest Sony dealer.

	Problem	Cause	Remedy
Amplifier	Sound is not heard.	For STR-GX40ES/STR-GX50ES: The TAPE MONITOR jacks are not in use and the TAPE MONITOR button is pressed to ON.	Press the TAPE MONITOR button to set to OFF.
		For STR-GX60ES: The ADAPTOR jacks are not in use and the ADAPTOR button is ON.	Press the ADAPTOR button to set to OFF.
		The speaker or program source equipment is not connected correctly.	Connect the equipment correctly. (See pages 6-9.)
		The correct speakers are not selected with SPEAKERS selector.	Set the SPEAKERS selector correctly.
		The correct FUNCTION selector is not pressed.	Press the correct FUNCTION selector.
		The volume is set to minimum.	Increase the volume.
	One channel does not transmit audio, or the volume from the left and right speakers is unbalanced.	The BALANCE control is not set appropriately.	Adjust the BALANCE control.
		The speaker or program source is not connected correctly.	Connect the equipment correctly. (See pages 6-9.)
	There is an abrupt loss of sound from one or both of the speakers, and the PROTECTOR indicator flickers in the display window.	A short-circuit problem activates the protective circuit.	Turn off the receiver, eliminate the short-circuit problem and turn on the power again. If there is no short-circuit, consult your nearest Sony dealer.
		The SPEAKER IMPEDANCE SELECTOR on the rear is not set correctly.	Set the SPEAKER IMPEDANCE SELECTOR correctly.
	Sound transmitted from the speakers is reversed.	The speakers are not connected correctly.	Connect the speaker with the correct ⊕⊖ polarities. (See page 8.)
	Severe hum or noise is heard.	The connecting cords are not of shielded type.	Use shielded type cords.
		A transformer, motor, TV or fluorescent light affects the connecting cord.	Place the connecting cords in a location away from a transformer or motor, and at least 3 meters (10 feet) from a TV set or a fluorescent light.
		The audio components are too close to a TV set.	If both are used at the same time, separate the TV from the audio components.
		The receiver is not grounded.	Connect the ground wire to the antenna ground terminal.
		The connections are loose.	Make secure connections.
		The plugs and jacks are dirty.	Wipe the plugs and jacks with a cloth lightly dampened with alcohol.

Broadcast program	STEREO indicator flickers or does not appear when receiving stereo programs.	A very weak FM station or a noisy FM program is received.	Adjust the antenna or connect an external FM antenna.
			Press the FM MODE button to disengage the stereo mode.
	The desired station cannot be found during Automatic Tuning.	The signal strength is too weak for Automatic Tuning.	Adjust the antenna.
			Tune in the station with the Manual Tuning system. (See page 16.)
	Preset stations cannot be tuned in.	The stations have not been memorized.	Memorize the stations. (See page 16.)
	AM station cannot be tuned in.	The AM tuning interval is set incorrectly.	Change the tuning interval according to the AM frequency allocation system of your country. (See page 5.)
Video program	Picture does not appear.	VCR, TV tuner or TV connection is not correct.	Connect the equipment correctly. (See page 7.)
		The TV is not turned on.	Turn the TV on.
Remote Commander	The remote commander does not operate.	The batteries are exhausted.	Replace the batteries with new ones.
		There is any object between the unit and the commander head.	Remove the object.

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 8 ohm load, both channels driven, from 20 – 20,000 Hz, rated 50 watts (STR-GX40ES), 80 watts (STR-GX50ES) or 100 watts (STR-GX60ES) per channel minimum RMS power, with no more than 0.08 % total harmonic distortion from 250 milliwatts to rated output.

Other Specifications

Amplifier section

Dynamic power output

STR-GX40ES
- 75 watts + 75 watts (8 ohms, at 1 kHz IHF)
- 100 watts + 100 watts (4 ohms, at 1 kHz IHF)
- 105 watts + 105 watts (2 ohms, at 1 kHz IHF)

STR-GX50ES
- 105 watts + 105 watts (8 ohms, at 1 kHz IHF)
- 160 watts + 160 watts (4 ohms, at 1 kHz IHF)
- 185 watts + 185 watts (2 ohms, at 1 kHz IHF)

STR-GX60ES
- 130 watts + 130 watts (8 ohms, at 1 kHz IHF)
- 200 watts + 200 watts (4 ohms, at 1 kHz IHF)
- 240 watts + 240 watts (2 ohms, at 1 kHz IHF)

Harmonic distortion
- Less than 0.08% at rated output

Frequency response
- PHONO: RIAA equalization curve ± 0.5 dB
- CD, DAT, TAPE, VIDEO 1,2 (AUDIO), ADAPTOR, TAPE MONITOR: 5 Hz – 50 kHz $^{+0}_{-1}$ dB

Residual noise: Less than 70 μV (8 ohms, network A)

Damping factor: 50 (8 ohms, 1 kHz)

Inputs

	Sensitivity	Impedance	S/N(weighting network, input level)
PHONO	2.5 mV	50 kilohms	87 dB 79 dB* (A, 2.5 mV)
CD, VIDEO (1), 2 TAPE, DAT TAPE MONITOR	150 mV	50 kilohms	105 dB 86 dB* (A, 150 mV)

* '78 IHF

Outputs
- VIDEO (1) AUDIO OUT
- REC OUT
  - Voltage 150 mV
  - Impedance 10 kilohms
- SPEAKER A, B
  - Accepts speakers of 4 – 16 ohms.
- HEADPHONES
  - Accepts low and high impedance headphones.

Video inputs: VIDEO 1, 2: 1 Vp-p, 75 ohms

Video outputs: VIDEO 1, MONITOR: 1 Vp-p, 75 ohms

Tone controls
- BASS: ±8 dB at 100 Hz
- TREBLE: ±8 dB at 10 kHz

Muting: −20 dB

FM/AM tuner section

	FM tuner section	AM tuner section
Tuning	87.5 — 108 MHz	530 — 1,710 kHz (with the AM tuning interval set at 10 kHz) 531 — 1,710 kHz (with the AM tuning interval set at 9 kHz)
Antenna	300 ohms, balanced 75 ohms, unbalanced	External antenna terminal, loop antenna
Intermediate frequency	10.7 MHz	450 kHz
Sensitivity at 50 dB quieting	18.3 dBf, 4.5μV (mono) 38.3 dBf, 45μV (stereo)	—
Usable sensitivity	11.2 dBf, 2μV (IHF)	Loop antenna: 50 dB/m (at 1,000 kHz) External antenna: 100μV (at 1,000 kHz)
Signal-to-noise ratio	82 dB (mono) 76 dB (stereo)	54 dB (at 50 mV/m)
Harmonic distortion	0.1% (mono), 0.2% (stereo) at 1 kHz	0.3% (at 50 mV/m, 400 Hz)
Selectivity	60 dB at 400 kHz	40 dB at 10 kHz 35 dB at 9 kHz
Separation	45 dB at 1 kHz	
Frequency response	30 Hz — 15 kHz $^{+0.5}_{-1.5}$ dB	
IM distortion	0.1% (mono) 0.2% (stereo)	
Capture ratio	1.2 dB	
AM suppression ratio	54 dB	
Image response ratio	80 dB	
IF response ratio	90 dB	
Spurious response ratio	100 dB	
RF Intermodulation	65 dB (800 kHz)	
Auto tuning threshold	30 dBf	

General

System
Tuner section: PLL quartz-locked digital synthesizer system
Preamplifier section: low-noise NF type equalizer amp
Power amplifier section: pure-complementary SEPP

Power requirements
120 V AC, 60 Hz

Power consumption

	USA model	Canadian model
STR-GX40ES	140 watts	270 VA
STR-GX50ES	170 watts	330 VA
STR-GX60ES	210 watts	430 VA

AC outlets
Two switched (total 100 watts)

Dimensions
Approx. 430 × 135 × 375 mm (w/h/d)
(17 × 5³/₈ × 14³/₄ inches)
including projecting parts and controls

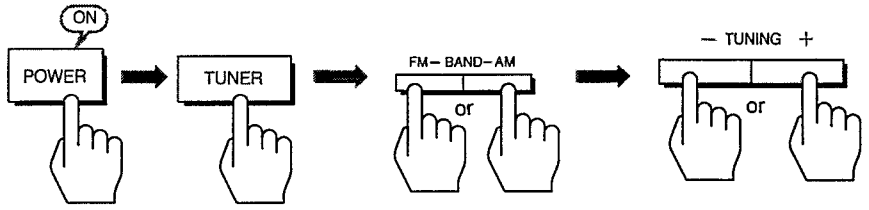
Weight
STR-GX40ES
Approx. 8.3 kg (18 lb 5 oz) net
Approx. 9.5 kg (21 lb) in shipping carton
STR-GX50ES
Approx. 8.8 kg (19 lb 7 oz) net
Approx. 10.2 kg (22 lb 8 oz) in shipping carton
STR-GX60ES
Approx. 10.1 kg (22 lb 5 oz) net
Approx. 11.5 kg (25 lb 6 oz) in shipping carton

Accessories supplied
FM ribbon antenna (1)
AM loop antenna (1)
Remote Commander (1)
RM-S103 (STR-GX40ES)
RM-U203 (STR-GX50ES)
RM-P303 (STR-GX60ES)
Sony batteries SUM-3(NS) (for the remote commander) (2)

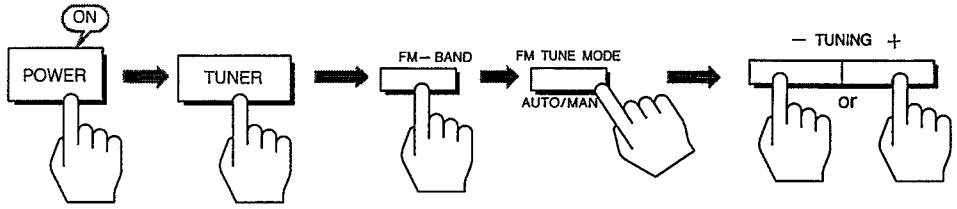
Design and specifications subject to change without notice.

Quick Reference

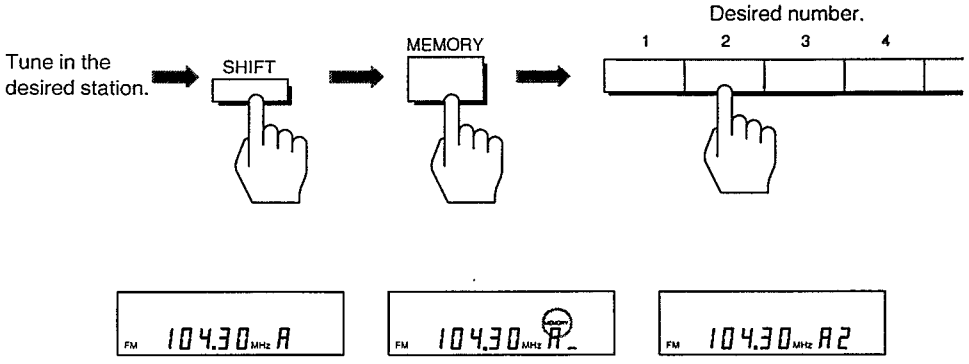
Tuning in an FM/AM station manually



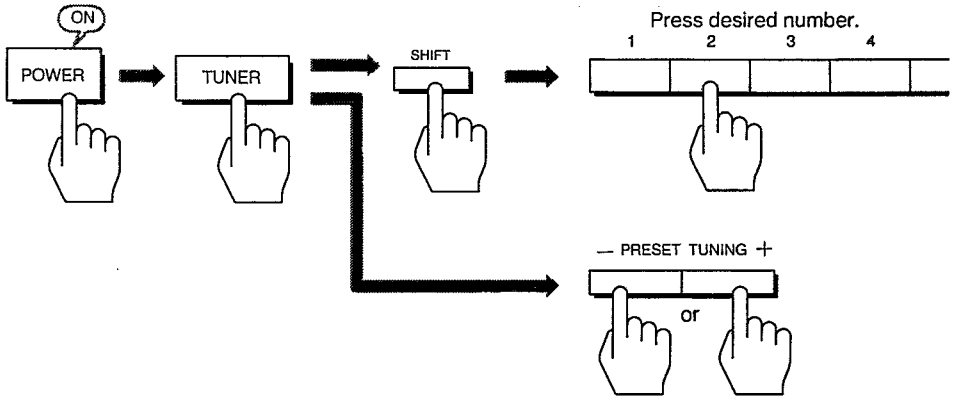
Tuning in an FM station automatically



Memorizing a station



Tuning in a preset station



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